

LAURA ELINA URONEN

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Science Centre North Block, The Chinese University of Hong Kong, Shatin, HKSAR

RESEARCH INTERESTS

My research focuses on multi-messenger gravitational-wave lensing. Using Bayesian inference, I work mainly in identifying GW strong lensing and in building methods to combine dark siren GW observations with EM information for multi-messenger science.

EDUCATION

The Chinese University of Hong Kong

2023 – Present

PH.D. PHYSICS

Supervised by Prof. Otto Hannuksela (CUHK), Prof. Justin Janquart (UCLouvain), Prof. Léon Koopmans (RUG).

My thesis work focuses on multi-messenger GW lensing inference and I am the lead developer of the SILMAREL multi-messenger lens reconstruction coding package, implementing joint inference between GW and EM data using a variety of lens reconstruction and GW analysis tools under a Bayesian framework.

University of St Andrews

2018 – 2023

INTEGRATED MPhys ASTROPHYSICS (HONS), *First Class*

Thesis: “Partial eclipse of the heart for HD 181793.”

Supervised by Prof. Andrew Collier Cameron, FRSE, and Dr. Tom Wilson.

EXPERIENCE

LINK Co-Lead

2023 – Present

LIGO Scientific Collaboration

Co-lead, developer and analyst for the Lensing INFerence framework GW lensing pipeline.

- Manage day-to-day operations of multi-tier pipeline;
- Run, verify and review PE analyses for LVK data and studies;
- Build, test and implement new features and handle code review process;
- Provide regular status and analysis reports to the working group;
- Work closely with other pipelines and members of the Lensing working group to coordinate analysis efforts.

Teaching

2023 – Present

The Chinese University of Hong Kong

- Teaching assistant for UG Physics courses, weekly tutorials, marking, consultations.
- Daily supervisor/mentor for UG final-year and PG research projects (Brian Cheng, 2024-present).

PUBLICATIONS

A list of selected publications is displayed here. For the complete list of publications, please see [INSPIRE-HEP](#).

Joint Bayesian Source and Lens Reconstruction for Multi-messenger Binary Black Holes

2026

Laura Uronen et al., [arXiv](#).

GWTC-4.0: Searches for Gravitational-Wave Lensing Signatures

2025

LIGO Scientific Collaboration, [arXiv](#).

LensingFlow: An Automated Workflow for Gravitational Wave Lensing Analyses

2025

Mick Wright et al., [arXiv](#).

Multi-messenger Gravitational Lensing

2025

Graham Smith et al., *Phil. Trans. A*.

Finding black holes: an unconventional multi-messenger

2025

Laura Uronen et al., *Phil. Trans. A*.

What is the nature of GW230529? An exploration of the gravitational lensing hypothesis

2025

Justin Janquart et al., *MNRAS*.

Dynamical mass determination and partial eclipses of the heartbeat star HD 181793

2024

Laura Uronen, Andrew Collier Cameron, Tom Wilson, *MNRAS*.

SKILLS

Languages: Native/fluent in Finnish, French, English; conversational in Spanish; basic Mandarin Chinese, German.

Coding languages: Python, FORTRAN, L^AT_EX.

Software: NUMPY, EMCEE, DYNESTY, PANDAS, JAX, GOLUM, BILBY, LENSTRONOMY, ASTROPY, ALLESFITTER, HERCULENS, NUMPYRO.

Tools: VSCode, GitHub/GitLab, MSOffice.

Other/soft: Translation, writing (creative, outreach, scicomm).

FELLOWSHIPS & AWARDS

PhD International Mobility for Partnerships and Collaborations Award CUHK Research collaboration travel grant, HK\$50,000.	2025-2026
CUHK Department of Physics Teaching Award CUHK Award based on student evaluation	2025
Hong Kong PhD Fellowship Award RGC Annual stipend and travel grant, ~ HK\$1,000,000.	2023-2026
Vice Chancellor's HKPFS Scholarship CUHK Final-year stipend, travel grant, and lodging award, ~ HK\$400,000	2023-2027
Student Staff Council Vacation Award University of St Andrews	2022
Deans' List University of St Andrews	2019, 2020, 2021

PRESENTATIONS

Contributed conference talks

- *Multi-messenger lensing with binary black holes* Dec 2025
Maximum Entropy Workshop 2025, Auckland, NZ
- *Multi-messenger lensing with black hole binaries* Apr 2025
Croucher Foundation Dark Matter Under the Gravitational Lens Workshop, HKSAR
- *Finding black holes: an unconventional multi-messenger* Mar 2024
Royal Society Meeting for Gravitational Lensing, Manchester, UK
- *Where's Waldo? A review of gravitational wave localisation* Nov 2023
Cosmic Frontiers Workshop, HKSAR

Posters

- LVK F2F Meeting, Pisa, Italy Mar 2026
- Rubin Strong Lensing Workshop, Oxford, UK Mar 2024
- LVK F2F Meeting, Toyama, Japan Sept 2023

Seminars & other presentations

Rijksuniversiteit Groningen, University of Sydney, Leiden University, UCLouvain, University of Amsterdam, University of Glasgow, University of Portsmouth, University of Sydney.

OUTREACH

- Organizing committee, CUHK Postgraduate Physics Society 2023 – Present
- Various roles, University of St Andrews Physics Society 2019 – 2023
- School Ambassador, University of St Andrews 2019 – 2023
- Physics Class Representative, University of St Andrews 2021 – 2022